

## IMPROVING OUR CONTROL OF MERCURY AND OTHER ENVIRONMENTAL POLLUTANTS—THE RADIAN PROJECT

### PRIMARY PROJECT PARTNER

**Radian Corporation**  
Austin, TX

### MAIN SITES

**New York State Electric and Gas, Kintigh Station**

**The Environmental Control Research Center, Electric Power Research Institute (EPRI)**  
Barker, NY

**Radian Corporation**  
Austin, TX

### TOTAL ESTIMATED COST

**\$3,465,300**

### COST SHARING

DOE	\$2,512,500
Non-DOE	\$952,800

### Project Description

The 1990 Clean Air Act Amendments started the ball rolling on new regulations for mercury control. Now electricity-generating utilities expect the imminent introduction of further restrictions on their emissions of mercury and other potentially hazardous substances. To gather information on control strategies, the U.S. Department of Energy is working with Radian Corporation of Austin, Texas. Testing will be conducted at the EPRI's 4-megawatt pilot-scale facility located at the New York State Electric and Gas Kintigh Station.

The project will investigate and demonstrate innovative modifications to a wet-flue-gas desulfurization scrubber. The versatile test facility has been modified to demonstrate control of different forms of mercury under a variety of conditions. The flue gas will come from a Kintigh Station slipstream, and different flue-gas conditions will be created to represent the conditions encountered by utilities in typical full-scale systems.

At bench- and pilot-scale, researchers will cover three areas of investigation: direct removal of elemental mercury; conversion of elemental mercury into soluble forms; and removal of particulate hazardous air pollutants across wet flue-gas desulfurization systems. The most promising options will be further developed on a larger scale.

### Program Goal

The Department of Energy has committed to developing, by 2010, power systems that are at least 10 times cleaner than today's standards allow, as well as 50 % more efficient. To this end, the Air Toxics and Fine Particulate Emissions-Control program has as its goal assessing and facilitating the development of existing technologies for the control of mercury, its speciated forms, and other hazardous air pollutants. The Radian project does much to achieve this objective. Twenty-five percent of the current electric utility industry, as well as all future plants with wet-flue-gas desulfurization installations, may require such controls under new regulations for mercury resulting from the Environmental Protection Agency studies under Title III of the Clean Air Act Amendments.

### Project Partners

**RADIAN CORPORATION**  
Austin, TX  
(project management)

**ELECTRIC POWER RESEARCH INSTITUTE**  
Palo Alto, CA  
(cosponsorship and expertise)

**ADA TECHNOLOGIES**  
Englewood, CO  
(precharger operations)

**PARSONS POWER**  
Barker, NY  
(ECTC operations)

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## CONTACT POINTS

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## Project Benefits

Title III of the Clean Air Act Amendments of 1990 charged the Environmental Protection Agency with the responsibility of assessing emissions of 190 hazardous air pollutants in order to determine the impact on public health and the environment. Pending new restrictions could dramatically affect the Nation's utilities, which supply 56% of U.S. electricity. Therefore DOE has assigned a high priority in its Fossil Energy program to studying mercury emissions and possible control strategies for U.S. power plants.

As utilities examine options for complying with regulations, they are challenged to find the most effective and economical methods available. The Radian Corporation project will provide important information on the effectiveness of a new mercury-control strategy. Building on previous DOE-funded investigations of the problem, researchers will demonstrate the value of mercury-control strategies for wet-flue-gas scrubber systems.

Key benefits include:

- Evaluation of various control options for mercury and other hazardous air pollutants, in a versatile facility capable of representing the conditions of wet-flue-gas desulfurization systems in the electric utility industry.
- Significant improvement of particulate collection across wet-flue-gas desulfurization systems.
- Provision of ways for the utility industry to meet the pending regulations for mercury and other hazardous air pollutants.

## Cost Profile (Dollars In Thousands)

	Prior Investment	FY95	FY96	FY97	Future Funds
Department of Energy *	—	\$335	\$450	\$53.6	\$1,673.9
Private Sector Partners	—	—	\$376.8	—	\$576.0

\* Appropriated Funding

## Key Milestones

FY96		FY97	
Testing		Reports	
Laboratory testing begun 11/95	ECTC testing begun 2/96	Final report 9/97	Phase II selection 10/97